

ABSTRACT

A rapid diagnostic test system or process uses a single-use module that includes a photodetector. The photodetector generates an electrical signal representing a measurement of light from a test region on a medium such as a lateral-flow strip for a binding assay. For light measurement, the test medium can contain a labeling substance that attaches a persistent fluorescent structure such as a quantum dot to a target analyte, so that the photodetector measures fluorescent light. Multiple photodetectors and an optical system that separates or filters light of wavelengths corresponding to different fluorescent labeling substances allow simultaneous testing for multiple analytes. The single-use module can include a display or LED for visual indication of test results, or the electrical signal can be output for processing in a reusable module.